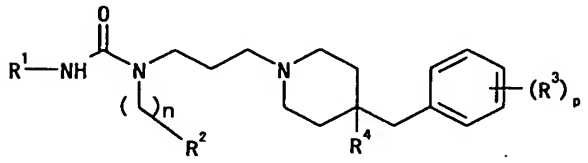
CLAIMS

1. A compound of the formula:



(I)

[wherein R^1 is a hydrocarbon group which may be substituted;
R^2 is a cyclic hydrocarbon group which may be substituted or a heterocyclic group which may be substituted;
R^3 is a halogen atom, a carbamoyl group which may be substituted, a sulfamoyl group which may be substituted, an acyl group derived from a sulfonic acid, a C_{1-4} alkyl group which may be substituted, a C_{1-4} alkoxy group which may be substituted, an amino group which may be substituted, a nitro group or a cyano group;
R^4 is a hydrogen atom or a hydroxy group;
n is an integer of 0 or 1;
p is an integer of 0 or 1 to 4];
or a salt thereof.

2. The compound as claimed in claim 1, wherein R^3 is a halogen atom, a C_{1-4} alkyl group which may be substituted, a C_{1-4} alkoxy group which may be substituted, an amino group which may be substituted, a nitro group or a cyano group.

3. The compound as claimed in claim 1, wherein R^1 is an alicyclic hydrocarbon group which may be substituted or an aryl group which may be substituted.

4. The compound as claimed in claim 1, wherein R^1 is a hydrocarbon group which may be substituted by 1 to 4 substituent(s) selected from 1) a hydrocarbon group which may

be substituted, 2) a heterocyclic group which may be substituted, 3) a C_{1-4} alkoxy group which may be substituted, 4) a C_{1-4} alkylthio group which may be substituted, 5) a C_{2-6} alkoxycarbonyl group which may be substituted, 6) a C_{1-6} alkanoyl group which may be substituted, 7) an amino group which may be substituted, 8) a cyclic amino group, 9) a halogen atom, 10) a nitro group, 11) a cyano group, 12) a carbamoyl group which may be substituted, 13) a sulfamoyl group which may be substituted and 14) an acyl group derived from a sulfonic acid.

5. The compound as claimed in claim 1, wherein R^1 is a hydrocarbon group which may be substituted by 1 to 4 substituent(s) selected from 1) a hydrocarbon group which may be substituted, 2) a heterocyclic group which may be substituted, 3) a C_{1-4} alkoxy group which may be substituted, 4) a C_{1-4} alkylthio group which may be substituted, 5) a C_{2-6} alkoxycarbonyl group which may be substituted, 6) an amino group which may be substituted, 7) a halogen atom, 8) a nitro group and 9) a cyano group.

6. The compound as claimed in claim 1, wherein R^1 is a hydrocarbon group which may be substituted by 1 to 4 substituent(s) selected from 1) a hydrocarbon group which may be substituted, 2) a heterocyclic group which may be substituted, 3) a C_{1-4} alkylthio group which may be substituted, 4) a C_{2-6} alkoxycarbonyl group which may be substituted, 5) an amino group which may be substituted, 6) a halogen atom and 7) a nitro group.

7. The compound as claimed in claim 1, wherein R^2 is an cyclic hydrocarbon group which may be substituted.

8. The compound as claimed in claim 1, wherein R^3 is a halogen, a carbamoyl group which may be substituted, a sulfamoyl group which may be substituted or an acyl group derived from a sulfonic acid.

9. The compound as claimed in claim 1, wherein R^3 is a halogen.

10. The compound as claimed in claim 1, wherein R^4 is a hydrogen atom.

11. The compound as claimed in claim 1, wherein n is 0.

12. The compound as claimed in claim 1, wherein R^1 is a hydrocarbon group selected from Group 3 which may be substituted by member(s) selected from Group 1;
R^2 is a cyclic hydrocarbon group selected from Group 10 which may be substituted by member(s) selected from Group 2, or a heterocyclic group selected from Group 4 which may be substituted by member(s) selected from Group 2;
R^3 is a halogen atom, a carbamoyl group, a N-mono-substituted carbamoyl group which is substituted by a member selected from Group 11, a N,N-di-substituted carbamoyl group which is substituted by a member selected from Group 11 and a member selected from Group 14, a cyclic aminocarbonyl group selected from Group 17, a sulfamoyl group, N-mono-substituted sulfamoyl group which is substituted by a member selected from Group 11, a N,N-di-substituted sulfamoyl group which is substituted by a member selected from Group 11 and a member selected from Group 14, a cyclic aminosulfonyl group selected from Group 20, an acyl group derived from a sulfonic acid selected from Group 15, a C_{1-4} alkyl group which may be substituted by member(s) selected from Group 2, a C_{1-4} alkoxy group which may be substituted by member(s) selected from Group 2, an amino group

which may be substituted by member(s) selected from Group 8, a cyclic amino group selected from Group 9, a nitro group or a cyano group.

[In the above,

Group 1 includes

1) a hydrocarbon group selected from Group 3 which may be substituted by member(s) selected from Group 2, 2) a heterocyclic group selected from Group 4 which may be substituted by member(s) selected from Group 2, 3) a C_{1-4} alkoxy group which may be substituted by member(s) selected from Group 2, 4) a C_{1-4} alkylthio group which may be substituted by member(s) selected from Group 2, 5) a C_{2-6} alkoxycarbonyl group which may be substituted by member(s) selected from Group 2, 6) a C_{1-6} alkanoyl group, 7) an amino group which may be substituted by member(s) selected from Group 8, 8) a cyclic amino group selected from Group 9, 9) a halogen atom, 10) a nitro group, 11) a cyano group, 12) a carbamoyl group, 13) a mono-substituted carbamoyl group which is substituted by a member selected from Group 11, 14) di-substituted carbamoyl group which is substituted by a member selected from Group 11 and a member selected Group 14, 15) a cyclic amino carbamoyl group selected from Group 17, 16) a sulfamoyl group, 17) a N-mono substituted sulfamoyl group which is substituted by a member selected from Group 11, 18) a N,N-di-substituted sulfamoyl group which is substituted by a member selected from Group 11 and a member selected Group 14, and 19) an acyl group derived from a sulfonic acid selected from Group 19,

Group 2 includes

1) a C_{1-6} alkoxy group, 2) a halogen atom, 3) a C_{1-6} alkyl group, 4) a C_{1-4} alkynyl group, 5) an amino group, 6) a hydroxy group, 7) a cyano group and 8) an amidino group,

Group 3 includes

1) a C_{1-6} alkyl group, 2) a C_{3-8} cycloalkyl group and 3) a C_{6-14}

aryl group,

Group 4 includes

1) an aromatic monocyclic heterocyclic group selected from Group 5, 2) an aromatic condensed heterocyclic group selected from Group 6 and 3) a saturated or unsaturated non-aromatic heterocyclic group selected from Group 7,

Group 5 includes

furyl, thienyl, pyrrolyl, oxazolyl, isoxazolyl, thiazolyl, isothiazolyl, imidazolyl, pyrazolyl, 1,2,3-oxadiazolyl, 1,2,4-oxadiazolyl, 1,3,4-oxadiazolyl, furazanyl, 1,2,3-thiadiazolyl, 1,2,4-thiadiazolyl, 1,3,4-thiadiazolyl, 1,2,3-triazolyl, 1,2,4-triazolyl, tetrazolyl, pyridyl, pyridazinyl, pyrimidinyl, pyrazinyl and triazinyl,

Group 6 includes

benzofuranyl, isobenzofuranyl, benzothienyl, indolyl, isoindolyl, 1H-indazolyl, benzindazolyl, benzoxazolyl, 1,2-benzisoxazolyl, benzothiazolyl, benzopyranyl, 1,2-benzisothiazolyl, 1H-benzotriazolyl, quinolyl, isoquinolyl, cinnolinyl, quinazolinyl, quinoxalinyl, phthalazinyl, naphthylidinyl, purinyl, pteridinyl, carbazolyl, α-carbolinyl, β-carbolinyl, γ-carbolinyl, acridinyl, phenoxazinyl, phenothiazinyl, phenazinyl, phenoxathiinyl, thianthrenyl, phenanthridinyl, phenathrolinyl, indolizinyl, pyrrolo[1,2-b]pyridazinyl, pyrazolo[1,5-a]pyridyl, imidazo[1,2-a]pyridyl, imidazo[1,5-a]pyridyl, imidazo[1,2-b]pyridazinyl, imidazo[1,2-a]pyrimidinyl, 1,2,4-triazolo[4,3-a]pyridyl and 1,2,4-triazolo[4,3-b]pyridazinyl,

Group 7 includes

oxylanyl, azetidinyl, oxetanyl, thietanyl, pyrrolidinyl, tetrahydrofuryl, thiolanyl, piperidyl, tetrahydropyranyl, morpholinyl, thiomorpholinyl and piperazinyl,

Group 8 includes

1) a C_{1-6} alkyl, 2) a C_{1-6} alkanoyl, 3) a C_{7-13} arylcarbonyl, 4)

an optionally halogenated C_{2-6} alkoxycarbonyl, 5) a C_{1-6} alkylimidoyl, 6) a formylimidoyl and 7) an amidino,

Group 9 includes

1) 1-azetidinyl, 2) 1-pyrrolidinyl, 3) 1-piperidinyl, 4) 4-morpholinyl, 5) 1-piperazinyl and 6) 1-piperazinyl which may have a C_{1-6} alkyl, a C_{7-10} aralkyl or a C_{6-10} aryl at 4-position,

Group 10 includes

C_{3-9} cycloalkyl, 1-indanyl, 2-indanyl, C_{3-6} cycloalkenyl, C_{4-6} cycloalkanedienyl and C_{6-14} aryl,

Group 11 includes

1) a C_{1-6} alkyl group which may be substituted by member(s) selected from Group 12, 2) a C_{3-6} cycloalkyl group which may be substituted by member(s) selected from Group 12, 3) a C_{6-10} aryl group which may be substituted by member(s) selected from Group 12, 4) a C_{7-10} aralkyl group which may be substituted by member(s) selected from Group 12, 5) a C_{1-6} alkoxy group which may be substituted by member(s) selected from Group 12 and 6) a heterocyclic group selected from Group 13 which may be substituted by member(s) selected from Group 12,

Group 12 includes

1) a hydroxy group, 2) an amino group, 3) an amino group which is mono or di-substituted by member(s) selected from Group 16, 4) a halogen atom, 5) a nitro group, 6) a cyano group, 7) a C_{1-6} alkyl group which may be substituted by halogen atom(s) and 8) a C_{1-6} alkoxy group which may be substituted by halogen atom(s),

Group 13 includes

1) an aromatic heterocyclic group selected from Group 5 and Group 6 and 2) a saturated or unsaturated non-aromatic heterocyclic group selected from Group 7, each of which contains at least one heteroatom(s) selected from the group consisting of an oxygen atom, a sulfur atom and a nitrogen atom,

Group 14 includes

a C_{1-6} alkyl group, a C_{3-6} cycloalkyl group and a C_{7-10} aralkyl

group,

Group 15 includes

1) a C_{1-10} alkylsulfonyl which may be substituted by member(s) selected from Group 12, 2) a C_{2-6} alkenylsulfonyl which may be substituted by member(s) selected from Group 12, 3) a C_{2-6} alkynylsulfonyl which may be substituted by member(s) selected from Group 12, 4) a C_{3-9} cycloalkylsulfonyl which may be substituted by member(s) selected from Group 12, 5) a C_{3-9} cycloalkenylsulfonyl which may be substituted by member(s) selected from Group 12, 6) a C_{6-14} arylsulfonyl which may be substituted by member(s) selected from Group 12 and 7) a C_{7-10} aralkylsulfonyl which may be substituted by member(s) selected from Group 12,

Group 16 includes

a C_{1-6} alkyl group, a C_{1-6} alkanoyl, a C_{7-13} arylcarbonyl and a C_{1-6} alkylsulfonyl,

Group 17 includes

1-azetidinylcarbonyl, 1-pyrrolidinylcarbonyl, 1-piperidinylcarbonyl, 4-morpholinylcarbonyl and 1-piperazinylcarbonyl which may be substituted by member(s) selected from Group 18,

Group 18 includes

a C_{1-6} alkyl group, a C_{7-10} aralkyl group and a C_{6-10} aryl group,

Group 19 includes

a C_{1-10} alkylsulfonyl which may be substituted by member(s) selected from Group 12, a C_{2-6} alkenylsulfonyl which may be substituted by member(s) selected from Group 12, a C_{2-6} alkynylsulfonyl which may be substituted by member(s) selected from Group 12, a C_{3-9} cycloalkylsulfonyl which may be substituted by member(s) selected from Group 12, a C_{3-9} cycloalkenylsulfonyl which may be substituted by member(s) selected from Group 12, a C_{6-14} arylsulfonyl which may be substituted by member(s) selected from Group 12, and a C_{7-10}

aralkylsulfonyl which may be substituted by member(s) selected from Group 12, and

Group 20 includes

1-azetidinylsulfonyl, 1-pyrrolidinylsulfonyl, 1-piperidinylsulfonyl, 4-morpholinylsulfonyl and 1-piperazinylsulfonyl which may be substituted by member(s) selected from Group 18].

13. The compound as claimed in claim 1, wherein R^1 is a C_{3-8} cycloalkyl group which may be substituted by member(s) selected from Group 1 or a C_{6-14} aryl group which may be substituted by member(s) selected from Group 1.

14. The compound as claimed in claim 12, wherein R^1 is 1) a C_{6-14} aryl group which may be substituted by a halogen atom, a C_{1-6} alkyl which may be substituted by halogen(s), a C_{1-4} alkylthio, a nitro, a carbamoyl, a sulfamoyl or C_{1-6} alkylsulfonyl, 2) a C_{1-6} alkyl group which may be substituted by (i) a C_{2-6} alkoxycarbonyl group or (ii) a C_{1-6} alkyl group which may be substituted by phenyl(s) which may be substituted by C_{1-6} alkyl(s) or 3) a C_{3-8} cycloalkyl group which may be substituted by (i) a halogen atom, (ii) a C_{1-6} alkyl(s) which may be substituted by halogen(s) or (iii) a C_{1-6} alkoxy group which may be substituted by halogen(s);

R^2 is a phenyl group which may be substituted by a halogen atom, a C_{1-6} alkyl, a C_{1-4} alkoxy or a cyano, a C_{3-8} cycloalkyl group or a pyridyl group;

R^3 is (i) a halogen atom, (ii) a carbamoyl group, (iii) a sulfamoyl group which may have one or two of C_{1-6} alkyl(s) and C_{3-6} cycloalkyl(s) at N-atoms, a cyclic aminosulfonyl group which is selected from Group 20, a C_{1-6} alkylsulfonyl group, or C_{3-6} cycloalkylsulfonyl group;

R^4 is a hydrogen atom;

n is 0 or 1, and

p is 0 or 1.

15. The compound as claimed in claim 12, wherein R^1 is 1) a phenyl group which may be substituted by a halogen atom, a C_{1-3} alkyl, trifluoromethyl, methoxy, trifluoromethoxy, methylthio or nitro, 2) a naphthyl, 3) a C_{1-6} alkyl group which may be substituted by (i) a C_{2-3} alkoxycarbonyl which may be substituted, (ii) phenyl or (iii) 3-isopropenylphenyl or 4) cyclohexyl;

R^2 is a phenyl group which may be substituted by a halogen atom, methyl, methoxy or cyano, a cyclohexyl group or a 3-pyridyl group;

R^3 is (i) a halogen atom, (ii) a carbamoyl group, (iii) a 4-morpholinylsulfonyl group or (iv) a methylsulfonyl group;

R^4 is a hydrogen atom;

n is 0 or 1; and

p is 0 or 1.

16. The compound as claimed in claim 12, wherein R^1 is a phenyl group which may be substituted by a halogen atom or a C_{1-3} alkyl;

R^2 is a phenyl group which may be substituted by halogen atom or methyl(s);

R^3 is (i) a halogen atom, (ii) a carbamoyl group, (iii) a sulfamoyl group which may be substituted by one or two members selected C_{1-6} alkyl and C_{3-6} cycloalkyl at N-atoms, a cyclic aminosulfonyl group selected from Group 20, a C_{1-6} alkylsulfonyl group or a C_{3-6} cycloalkyl sulfonyl group;

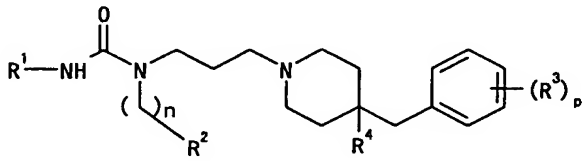
R^4 is a hydrogen atom;

n is 0; and

p is 0 or 1.

17. The compound as claimed in claim 1, which is N-[3-(4-benzyl-1-piperidinyl)propyl]-N'-(4-chlorophenyl)-N-phenylurea, N'-(4-chlorophenyl)-N-{3-[4-(4-fluorobenzyl)-1-piperidinyl]propyl}-N-phenylurea, N'-(4-chlorophenyl)-N-(3-{4-[4-(4-morpholinylsulfonyl)benzyl]-1-piperidinyl}propyl)-N-phenylurea, N'-(4-chlorophenyl)-N-(3-{4-[4-(4-methylsulfonyl)benzyl]-1-piperidinyl}propyl)-N-phenylurea or 4-{[1-(3-{[(4-chloroanilino)carbonyl]anilino}propyl)-4-piperidinyl]methyl}benzamide, or a salt thereof.

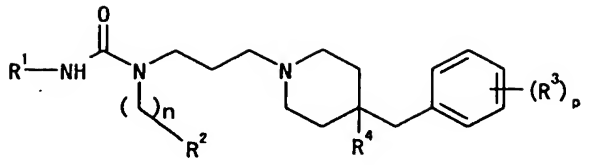
18. A prodrug of a compound of the formula:



(I)

[wherein R^1 is a hydrocarbon group which may be substituted; R^2 is a cyclic hydrocarbon group which may be substituted or a heterocyclic group which may be substituted; R^3 is a halogen atom, a carbamoyl group which may be substituted, a sulfamoyl group which may be substituted, an acyl group derived from a sulfonic acid, a C_{1-4} alkyl group which may be substituted, a C_{1-4} alkoxy group which may be substituted, an amino group which may be substituted, a nitro group or a cyano group; R^4 is a hydrogen atom or a hydroxy group; n is an integer of 0 or 1; p is an integer of 0 or 1 to 4]; or salt thereof.

19. A pharmaceutical composition containing a compound of the formula:



(I)

[wherein R^1 is a hydrocarbon group which may be substituted;
R^2 is a cyclic hydrocarbon group which may be substituted or a heterocyclic group which may be substituted;
R^3 is a halogen atom, a carbamoyl group which may be substituted, a sulfamoyl group which may be substituted, an acyl group derived from a sulfonic acid, a C_{1-4} alkyl group which may be substituted, a C_{1-4} alkoxy group which may be substituted, an amino group which may be substituted, a nitro group or a cyano group;
R^4 is a hydrogen atom or a hydroxy group;
n is an integer of 0 or 1;
p is an integer of 0 or 1 to 4];
or a salt thereof or a prodrug thereof.

20. The pharmaceutical composition as claimed in claim 19, which is a chemokine receptor antagonist.

21. The pharmaceutical composition as claimed in claim 19, which is a CCR5 antagonist.

22. The composition as claimed in claim 19, which is for the treatment or prevention of infectious disease of HIV.

23. The composition as claimed in claim 19, which is for the treatment or prevention of AIDS.

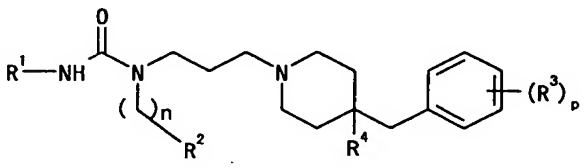
24. The composition as claimed in claim 19, which is for the prevention of the progression of AIDS.

25. The composition as claimed in claim 22, further comprises a protease inhibitor and/or a reverse transcriptase inhibitor.

26. The composition as claimed in claim 25, wherein the reverse transcriptase inhibitor is zidovudine, didanosine, zalcitabine, lamivudine, stavudine, abacavir, nevirapine, delavirdine or efavirenz.

27. The composition as claimed in claim 25, wherein the protease inhibitor is saquinavir, ritonavir, indinavir, amprenavir or nelfinavir.

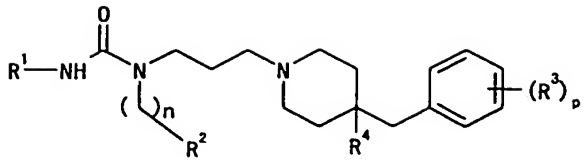
28. Use of a compound of the formula:



(I)

[wherein R^1 is a hydrocarbon group which may be substituted;
R^2 is a cyclic hydrocarbon group which may be substituted or a heterocyclic group which may be substituted;
R^3 is a halogen atom, a carbamoyl group which may be substituted, a sulfamoyl group which may be substituted, an acyl group derived from a sulfonic acid, a C_{1-4} alkyl group which may be substituted, a C_{1-4} alkoxy group which may be substituted, an amino group which may be substituted, a nitro group or a cyano group;
R^4 is a hydrogen atom or a hydroxy group;
n is an integer of 0 or 1;
p is an integer of 0 or 1 to 4];
or a salt thereof or a prodrug thereof for manufacturing an antagonist of a chemokine receptor.

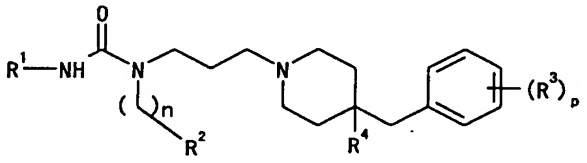
29. Use of a compound of the formula:



(I)

[wherein R^1 is a hydrocarbon group which may be substituted;
R^2 is a cyclic hydrocarbon group which may be substituted or a heterocyclic group which may be substituted;
R^3 is a halogen atom, a carbamoyl group which may be substituted, a sulfamoyl group which may be substituted, an acyl group derived from a sulfonic acid, a C_{1-4} alkyl group which may be substituted, a C_{1-4} alkoxy group which may be substituted, an amino group which may be substituted, a nitro group or a cyano group;
R^4 is a hydrogen atom or a hydroxy group;
n is an integer of 0 or 1;
p is an integer of 0 or 1 to 4];
a salt thereof or a prodrug thereof for manufacturing a CCR5 antagonist.

30. Use of a compound of the formula:



(I)

[wherein R^1 is a hydrocarbon group which may be substituted;
R^2 is a cyclic hydrocarbon group which may be substituted or a heterocyclic group which may be substituted;
R^3 is a halogen atom, a carbamoyl group which may be substituted, a sulfamoyl group which may be substituted, an acyl group derived from a sulfonic acid, a C_{1-4} alkyl group which may be substituted, a C_{1-4} alkoxy group which may be substituted, an amino group which may be substituted, a nitro group or a cyano group;

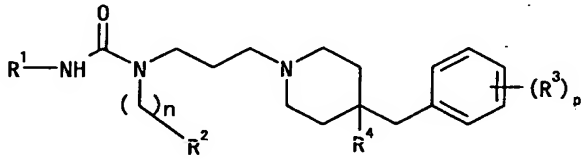
R^4 is a hydrogen atom or a hydroxy group;

n is an integer of 0 or 1;

p is an integer of 0 or 1 to 4];

a salt thereof or a prodrug thereof for manufacturing a medicament for the treatment or prevention of infectious disease of HIV.

31. Use of a compound of the formula:



(I)

[wherein R^1 is a hydrocarbon group which may be substituted;

R^2 is a cyclic hydrocarbon group which may be substituted or a heterocyclic group which may be substituted;

R^3 is a halogen atom, a carbamoyl group which may be substituted, a sulfamoyl group which may be substituted, an acyl group derived from a sulfonic acid, a C_{1-4} alkyl group which may be substituted, a C_{1-4} alkoxy group which may be substituted, an amino group which may be substituted, a nitro group or a cyano group;

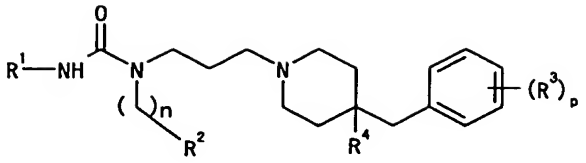
R^4 is a hydrogen atom or a hydroxy group;

n is an integer of 0 or 1;

p is an integer of 0 or 1 to 4];

a salt thereof or a prodrug thereof, for the manufacture of a medicament for the treatment or prevention of infectious disease of HIV which is used in combination with a protease inhibitor and/or a reverse transcriptase inhibitor.

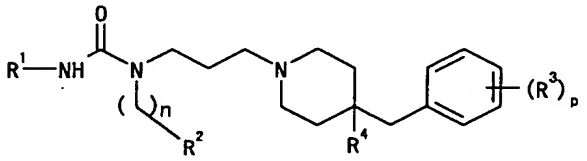
32. A method for antagonizing CCR5 which comprises administering to a mammal in need thereof an effective amount of the compound of the formula (I):



(I)

[wherein R^1 is a hydrocarbon group which may be substituted;
R^2 is a cyclic hydrocarbon group which may be substituted or a heterocyclic group which may be substituted;
R^3 is a halogen atom, a carbamoyl group which may be substituted, a sulfamoyl group which may be substituted, an acyl group derived from a sulfonic acid, a C_{1-4} alkyl group which may be substituted, a C_{1-4} alkoxy group which may be substituted, an amino group which may be substituted, a nitro group or a cyano group;
R^4 is a hydrogen atom or a hydroxy group;
n is an integer of 0 or 1;
p is an integer of 0 or 1 to 4];
a salt thereof or a prodrug thereof.

33. A method for producing a compound of the formula:



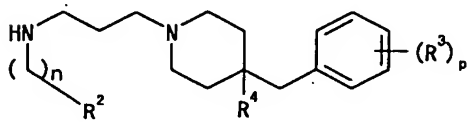
(I)

[wherein R^1 is a hydrocarbon group which may be substituted;
R^2 is a cyclic hydrocarbon group which may be substituted or a heterocyclic group which may be substituted;
R^3 is a halogen atom, a carbamoyl group which may be substituted, a sulfamoyl group which may be substituted, an acyl group derived from a sulfonic acid, a C_{1-4} alkyl group which may be substituted, a C_{1-4} alkoxy group which may be substituted, an amino group which may be substituted, a nitro group or a cyano group;
R^4 is a hydrogen atom or a hydroxy group;

n is an integer of 0 or 1;

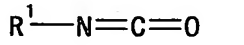
p is an integer of 0 or 1 to 4];

or a salt thereof, which comprises reacting a compound of the formula:



(II)

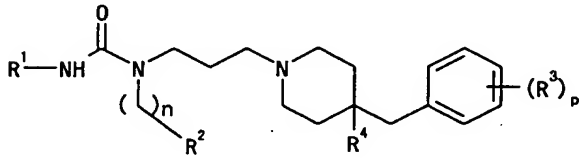
[wherein each symbol has the same meaning as above], or a salt thereof, with a compound of the formula:



(III)

[wherein R^1 has the meaning given above], or a salt thereof.

34. A method for producing a compound of the formula:



(I)

[wherein R^1 is a hydrocarbon group which may be substituted;

R^2 is a cyclic hydrocarbon group which may be substituted or a heterocyclic group which may be substituted;

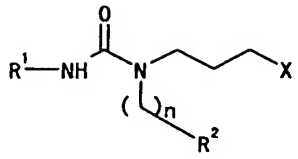
R^3 is a halogen atom, a carbamoyl group which may be substituted, a sulfamoyl group which may be substituted, an acyl group derived from a sulfonic acid, a C_{1-4} alkyl group which may be substituted, a C_{1-4} alkoxy group which may be substituted, an amino group which may be substituted, a nitro group or a cyano group;

R^4 is a hydrogen atom or a hydroxy group;

n is an integer of 0 or 1;

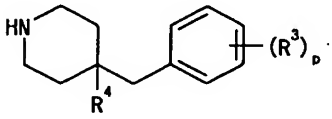
p is an integer of 0 or 1 to 4];

or a salt thereof, which comprises reacting a compound of the formula:



(IV)

[wherein X is a leaving group, and the other symbols have the meanings given above], or a salt thereof, with a compound of the formula:



(V)

[wherein each symbol has the meaning given above], or a salt thereof.